

# SENTINEL

## Installation Guide

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# Welcome to Sentinel

Sentinel is a print security, cost control and management solution. Document security can be improved in an organisation by using the pull printing and secure function lock features.

You can monitor and reduce your printing costs by implementing pull printing to reduce waste, assign quotas to limit what users can print, and assign budgets to departments to give them targets to meet.

Managing printing is easier with Sentinel as it uses profiles to manage settings and apply them to groups of users or printers. Mail2Print brings secure monitored printing to tablets and smartphones whilst ScanDirect enables secure scanning without the need to deploy scanner drivers.

**This installation guide is intended for the Sentinel administrator. It contains instructions on how to install the Sentinel system on a server. For instructions on using the Sentinel interface, read the Sentinel Implementation Guide.**

# Windows Server 2008

See [System Requirements](#). To install the software on other operating systems:

- [Windows Server 2003](#)
- [Cluster Server](#)

## Step 1: Installing IIS

Before you can install Sentinel on a Windows Server 2008 system you must first install Microsoft IIS (Internet Information Services) software on the server:

1. Log in as an Administrator.
2. Open the Server Manager.
3. Right click **Roles** and select **Add Roles**.  
The **Add Roles Wizard** starts.
4. Select **Web Server (IIS)**.
5. Click **Role Services** and under **Common HTTP Features** make sure **Static Content** is selected.
6. Select **Application Development** and make sure all its sub-options are selected.
7. Under **Security**, select **Windows Authentication**.
8. Select **IIS 6 Management Compatibility** and make sure all its sub-options are selected.
9. Click **Next** and then **Install**. Click **Close** when the installation finishes.

## Step 2: Installing Sentinel

Now that IIS is installed on the server, you can install the Sentinel software:

1. Extract the latest version of the Sentinel software.
2. From the extracted Sentinel software folder, run **setup.exe**.
3. Click **Install Sentinel** and follow the instructions on the screen until you see the **Select Installation Address** screen.
4. For **Application Pool**, select **ASP.NET v4.0 Classic**.
5. Click **Next**. Follow the instructions until **Welcome to the Sentinel configuration wizard!** appears.
6. Click **Next**. Follow the instructions until the installer prompts you to select your database.
7. Select **DB** type
8. For SQL DB - Enter DB details.
9. Click **Test Connection**, verify it is OK and click **Next**.
10. Continue until the **Printer Monitoring** screen appears. Close it.
11. When the **Installation Complete** screen appears, click **Close**.  
Sentinel is installed.

If necessary, see the [Troubleshooting](#) section. Otherwise, you are ready to start using the Sentinel software. Refer to the Sentinel Implementation Guide for detailed step-by-step instructions.

# Windows Server 2003

See [System Requirements](#). To install the software on other operating systems:

- [Windows Server 2008](#)
- [Cluster Server](#)

## Step 1: Installing IIS

Before you can install Sentinel on a Windows Server 2003 system you must first install Microsoft's IIS (Internet Information Services) software on the server:

1. Log in as an Administrator.
2. Open **Manage Your Server**.
3. Click **Add or remove a role**.  
The **Configure Your Server Wizard** starts.
4. Click **Next** and then select **Application server (IIS, ASP.NET)** and click **Next**.
5. Select **Enable ASP.NET** and click **Next**.
6. Check the summary and click **Next**. When the installation is complete, click **Finish**.

## Step 2: Installing Sentinel

Now that IIS is installed on the server, you can install the Sentinel software:

1. Extract the latest version of the Sentinel software.
2. From the extracted Sentinel software folder, run setup.exe.
3. Click [Install Sentinel and](#) follow the instructions on the screen until you see the **Select Installation Address** screen.
4. In the **Application Pool** check that **DefaultAppPool** is selected.
5. Click **Next**. Follow the instructions until **Welcome to the Sentinel configuration wizard!** appears.
6. Click **Next**. Follow the instructions until the installer prompts you to select your database.
7. Select **DB** type
8. For SQL DB - Enter DB details.
9. Click **Test Connection**, verify it is OK and click **Next**.
10. Continue until the **Printer Monitoring** screen appears. Close it.
11. When the **Installation Complete** screen appears, click **Close**.  
Sentinel is installed.

If necessary, see the [Troubleshooting](#) section. Otherwise, you are ready to start using the Sentinel software. Refer to the Sentinel Implementation Guide for detailed step-by-step instructions.

# Cluster Server

See [System Requirements](#). To install the software on other operating systems:

- [Windows Server 2008](#)
- [Windows Server 2003](#)

## Step 1: Installing IIS

1. Install IIS on both nodes as explained for [Windows 2008](#).
2. On the cluster's shared directory (default - drive R) of the cluster server, create two folders:
  - To store the print job spooling: **R:\Sentinel\Queue**.
  - To store the intranet web interface files: **R:\SentinelWeb**.
3. Add a new site in IIS for use by the Sentinel management interface. Name the new site **Sentinel**. Specify port **8080**.
4. Specify the site's home directory as **R:\SentinelWeb** and set full access permissions for this site.
5. Verify that the new **Sentinel** site appears in the IIS manager, under **Computer management**.  
**NOTE:** It is recommended to use MS SQL when Sentinel is installed on a server cluster, although the initial setting of the system after installation is to work with MS Access.

## Step 2: Installing Sentinel


1. Run Sentinel system setup as described for [Windows 2008](#). Run setup on each of the cluster's nodes.  
**NOTE:** The only difference from a single server installation is that the site name for installing the management interface is **Sentinel**. Do not use the **Default Web Site** option.
2. Connect the system to the database by setting the following value in the registry. This is required because the system is redirected to drive R: In registry key:  
**KEY\_LOCAL\_MACHINE\SOFTWARE\Sentinel\Settings\QueuePath**  
set the value: **R:\Sentinel\Queue\**. Repeat for each node.
3. Connect both nodes as a cluster: Open the Sentinel web page by selecting **Start → All Programs → Sentinel → Sentinel web page**. Go to **Settings -> Behaviour-> Other** and define the cluster name.
4. Use MS Cluster Manager to define the Sentinel service as a resource. Name the resource as **Sentinel**.
5. Define the synchronization between the cluster nodes:
  - Specify the service name as **Sentinel**.
  - Set the root registry key to **SOFTWARE\Sentinel**.
6. Manually add the Sentinel print processor to the cluster virtual printing by copying the file **Sentinel.dll** to the print processor DLL folder and adding the print processor registry keys.



If necessary, see the [Troubleshooting](#) section. Otherwise, you are ready to start using the Sentinel software. Refer to the Sentinel Implementation Guide for detailed step-by-step instructions.

# Troubleshooting

This section covers errors or problems that can arise during installation of Sentinel. If the suggested solution does not solve the problem, or if you experience a problem not listed here, contact your Sentinel technical support provider.

For explanations related to daily Sentinel operation, refer to the on-line help in the software by pressing the Help icon  or the Troubleshooting section in the Sentinel Implementation Guide.

## Service unavailable error (domain controller)

<b>Symptoms</b>	When trying to start the Sentinel web page, you get the error: "Service Unavailable".
<b>Cause</b>	This may occur if the server running Microsoft Internet Information Services (IIS) 6.0 is also a domain controller. The problem occurs because the Application pool is using the <b>NT Authority\Network Service</b> account, and the account does not have permission to access the required folders.
<b>Resolution</b>	<p>Manually set permissions on the folders for the <b>IIS_WPG</b> group, and then set permissions on the folders for the <b>NT Authority\Network Service</b> account. To set permissions on the folders for the <b>IIS_WPG</b> group and the <b>NT Authority\Network Service</b> account:</p> <ol style="list-style-type: none"> <li>1. Start Windows Explorer, and then open the folder <b>%systemroot%\Help\iisHelp</b>.</li> <li>2. In the right pane, right click the <b>Common</b> folder, and click <b>Sharing and Security</b>.</li> <li>3. Click the <b>Security</b> tab, click <b>Add</b>, type <b>IIS_WPG</b>, and click <b>OK</b>.</li> <li>4. With <b>IIS_WPG</b> selected, select the following checkboxes under the <b>Allow</b> column, and click <b>OK</b>: <ul style="list-style-type: none"> <li>• Read and Execute</li> <li>• List Folder Contents</li> <li>• Read</li> </ul> </li> <li>5. Repeat the previous step with <b>NETWORK SERVICE</b> instead of <b>IIS_WPG</b>.</li> <li>6. Open the folder <b>%systemroot%\system32\inetrv</b>. In the right pane, right click the <b>ASP Compiled Templates</b> folder, and click <b>Sharing and Security</b>.</li> <li>7. Click the <b>Security</b> tab, click the <b>IIS_WPG</b> group, and select the <b>Full Control</b> checkbox under the <b>Allow</b> column. Click <b>OK</b>.</li> <li>8. Repeat the above step with <b>NETWORK SERVICE</b> instead of <b>IIS_WPG</b>.</li> <li>9. Open the folder <b>%systemroot%</b>. In the right pane, right click the <b>IIS Temporary Compressed</b> folder, and click <b>Sharing and Security</b>.</li> <li>10. Click the <b>Security</b> tab, click the <b>IIS_WPG</b> group, and select the <b>Full Control</b> checkbox under the <b>Allow</b> column. Click <b>OK</b>.</li> <li>11. Repeat the previous step with <b>NETWORK SERVICE</b> instead of <b>IIS_WPG</b>.</li> <li>12. Restart the <b>IIS Admin</b> service from the <b>Services</b> snap-in or from the <b>Computer Management</b> snap-in.</li> </ol>

## HTTP Error 404: File or Directory not found (Windows 2003)

<b>Symptoms</b>	When trying to start the Sentinel web page, you get the error: "HTTP Error 404: File or Directory not found".
<b>Cause</b>	By default, when IIS is installed on any version of the Windows Server 2003 family, IIS only serves static content (HTML).

<b>Resolution</b>	<p>First check that IIS is running, and Default Web Site is not stopped. If it is running, and you need to permit IIS to serve content that requires a specific ISAPI or CGI extension that is already listed in the Web service extensions list, follow these steps:</p> <ol style="list-style-type: none"> <li>1. Open IIS Manager, expand the master server node (i.e., the <b>Servername</b> node), and then select the <b>Web service extensions</b> node.</li> <li>2. In the right pane of IIS Manager, make sure that the <b>Active Server Pages</b> extension is allowed and that the <b>ASP.NET v4</b> is allowed.</li> <li>3. Reset the IIS service by typing <b>IISRESET</b> in the command line.</li> <li>4. In IIS Manager, check that Default Web Site is started.</li> </ol>
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### Configuration file processing error (Windows 2008)

<b>Symptoms</b>	When trying to start the Sentinel web page, you get the error: "An error occurred during the processing of a configuration file required to service this request."
<b>Cause</b>	These settings were not configured automatically by the Sentinel installation.

<b>Resolution</b>	<ol style="list-style-type: none"> <li>1. Run <b>Internet Information Services (IIS) Manager</b>, expand the tree for your server name, and click <b>Applications Pools</b> to display the list of application pools on the server.</li> <li>2. Right click <b>ASP.NET v4.0 Classic</b> and select <b>Advanced Settings</b>.</li> <li>3. Make sure that <b>Enable 32-Bit Applications</b> is set to <b>True</b>.</li> <li>4. Make sure that <b>Managed Pipeline Mode</b> is set to <b>Classic</b>.</li> <li>5. Close the <b>Internet Information Services (IIS) Manager</b>.</li> </ol>
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### Configuration file processing error (DotNet)

<b>Symptoms</b>	When trying to start the Sentinel web page, you get the error: "An error occurred during the processing of a configuration file required to service this request."
<b>Cause</b>	This error occurs when Sentinel is using DotNet Framework version earlier than 0.4.
<b>Resolution</b>	<ol style="list-style-type: none"> <li>1. Go to IIS Settings (<b>Start → Settings → Control Panel → Administrative Tools → Internet Information Services</b>).</li> <li>2. Expand <b>Local Computer\Web Sites\Default Web Site</b>. Right click <b>Sentinel</b> and select <b>Properties</b>.</li> <li>3. Go to <b>ASP.NET</b> tab and make sure that the ASP.Net Version is 4.X.</li> </ol>

### Configuration file processing error (Windows 7)

<b>Symptoms</b>	When trying to start the Sentinel web page, you get the error: "An error occurred during the processing of a configuration file required to service this request."
<b>Cause</b>	<p>If you are installing Sentinel on a Windows 7 Professional or higher operating system, please note that installing on a server is recommended. It may be possible to install on other Windows operating systems such as 7 by following the server instructions; however, extra steps (such as those below) may be required and reliability cannot be guaranteed. Known limitations:</p> <ul style="list-style-type: none"> <li>• Cannot define more than five printers.</li> <li>• Sharing is only possible for up to five people.</li> <li>• No Windows authentication.</li> </ul>

<b>Resolution</b>	<p>Microsoft IIS installation:</p> <ol style="list-style-type: none"> <li>1. Log in as a user with administrator privileges. <b>NOTE:</b> To use Sentinel on a Windows 7 operating system, the user name must have a password defined (it cannot be blank).</li> <li>2. In the <b>Control Panel</b>, click <b>Programs</b>, and select <b>Turn Windows features on or off</b>. The <b>Windows features</b> screen appears.</li> <li>3. Select <b>Internet Information Services</b> and expand it.</li> <li>4. Select <b>Web Management Tools</b> and expand it.</li> <li>5. Select <b>IIS 6 Management Compatibility</b> and make sure that all its sub-options are selected.</li> <li>6. Under <b>World Wide Web Services</b>, select <b>Application Development Features</b>, and ensure that all its sub-options are selected.</li> <li>7. In the <b>Security</b> option, select <b>Windows Authentication</b>.</li> <li>8. Click <b>OK</b> and wait for Windows 7 to make the necessary changes. Close the Control Panel.</li> <li>9. Install Sentinel in the same manner as for Windows 2008.</li> </ol>
<b>Default website is used by another application on the server (port 80)</b>	
<b>Symptoms</b>	When logging in to the Sentinel web page, you receive another application or an error related to other application.
<b>Cause</b>	When installing Sentinel, the default installation option is to the Default Web Site, and the default port is <b>80</b> (the standard web port). If this website or port is already in use by another application, there may be a collision between the applications, and the Sentinel web page will not appear.
<b>Resolution</b>	<p>Install Sentinel on a new website with a different port number as follows:</p> <ol style="list-style-type: none"> <li>1. Open the IIS Manager and add a new website.</li> <li>2. Click <b>Next</b> and in the following screen type the name of the site (<b>Sentinel</b>). Click <b>Next</b>.</li> <li>3. Change the port number for the new website to a new port (for example, <b>81</b>). Click <b>Next</b>.</li> <li>4. Type the path to the root of the new website (<b>c:\inetpub\wwwroot</b>) and click <b>Next</b>.</li> <li>5. Allow all access permissions and click <b>Next</b>.</li> <li>6. Confirm the warning message and click <b>Finish</b>.</li> <li>7. Uninstall Sentinel from <b>Add/Remove Programs</b>.</li> <li>8. Start the Sentinel setup program to reinstall it. In <b>Select Installation Address</b>, from the <b>Site</b> list, select <b>Sentinel</b> (<b>not</b> the Default Web Site).</li> <li>9. Install Sentinel.</li> <li>10. When opening the Sentinel web page in a browser, ensure you are using the correct port to the website; for example: <b>http://localhost:81/Sentinel</b>.</li> </ol>
<b>Jobs are not printed after correct installtion</b>	
<b>Symptoms</b>	Printing jobs are not printed.
<b>Cause</b>	Sentinel service is not running
<b>Resolution</b>	Start <b>Services</b> . Make sure that the Sentinel service is running and that the <b>Startup Type</b> is set to <b>Automatic</b>

For more assistance with problems that may arise while operating Sentinel, see the Troubleshooting section in the Sentinel Implementation Guide.

# System Requirements

These are the basic requirements for operating the Sentinel system.

Component	Requirement
<b>Operating system for Sentinel software</b>	One of the following: <ul style="list-style-type: none"> <li>• Windows Server 2012</li> <li>• Windows Server 2008</li> <li>• Windows Server 2003</li> <li>• Microsoft Cluster Server</li> </ul>
<b>Operating system for clients</b>	Windows XP or higher
<b>Web browser</b>	One of the following: <ul style="list-style-type: none"> <li>• Internet Explorer (IE) 6 or higher</li> <li>• Firefox 7 or higher</li> <li>• Chrome 8 or higher</li> </ul>
<b>Database</b>	<ul style="list-style-type: none"> <li>• Local database for testing and small environments</li> <li>• Microsoft SQL Server for production and large environments</li> </ul> <p>The database requires a minimum of 100MB but will expand in size as Sentinel is used</p>
<b>Available Disk Space</b>	Minimum: 10GB or greater
<b>IIS</b>	Yes
<b>.NET framework 2.0</b>	Yes
<b>.NET framework 4.0</b>	Yes or higher
<b>Port to Open</b>	<b>TCP Port</b> <ul style="list-style-type: none"> <li>• 515</li> </ul> <b>UPD Port</b> <ul style="list-style-type: none"> <li>• 7001</li> <li>• 7002</li> <li>• 65535</li> </ul>